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EXAMINER	
STERRETT, JONATHAN G	

ART UNIT	PAPER NUMBER
3623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/716,476	PANDIT, RAM	
	Examiner	Art Unit	
	JONATHAN G. STERRETT	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,11-21,24-34 and 37-39* is/are pending in the application.

4a) Of the above claim(s) *11-13,24-26 and 37-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1–8, 14-21 and 27-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. This **Final Rejection** is responsive to the amendment of 29 December 2008. **Claims 1-8, 11-21, 24-34 and 37-39** are pending. **Claims 11-13, 24-26 and 37-39** are withdrawn. .**Claims 9, 10, 22, 23, 35 and 36** are cancelled **Claims 1–8, 14-21 and 27-34** are rejected.

Response to Amendment

2. The 35 USC 101 rejection of Claims 27-34 are withdrawn.

Response to Argument

3. The applicant argues that the amendment to claim 1 which states that the method is "computer implemented" makes the claim statutory.

The examiner respectfully disagrees.

The actual steps in the claim have no tie positively recited tie to a particular apparatus and are not statutory. In order for the claim to be statutory, the method steps need to be recited in such a way as to make it clear that the step has a particular tie. Saying that the claim is “computer implemented” is considered to be a nominal recitation of such a tie and does not make the claim statutory.

The applicant argues that Thompson fails to teach ranking loads according to a first segment and a second segment and then reassigning the load from the first segment to the second segment based on the fit, as per:

"ranking, in a first list comprising available loads for the first segment, the relative fits of the first load data and the second load data against the first segment;

ranking, in a second list comprising available loads for the second segment, the relative fits of the first load data and the second load data against the second segment;

assigning the load having the highest ranking fit from the first list to the first segment and removing that load from the second list."

The examiner respectfully disagrees.

The teachings of Thompson include cyclic transfers, which is transferring a load from one segment to another segment if doing so will save money. This is part of the optimization heuristic that Thompson teaches. Part of this optimization is forming lists – note on page 936 column 1, that a subset of routes are considered (and the associated loads) according to the notation: roh is a cyclic subset of the routes from 1 to m, thus roh is a list of routes which can be exchanged. Accordingly, the determination of a list for the cyclic transfer method is something shown as part of a cyclic transfer approach. The basic concept of cyclic transfers is that of swapping loads between segments to improve operational efficiency (i.e. an ultimately cost). The basic concept of doing so combined with the Official Notice that using lists of segments is old and well known. Having two lists of segments combined with the concept of swapping to

improve efficiency (i.e. if swapping a load from one list to a second list saves money, then make the swap, otherwise keep as is) as applied to all the segments on two lists would suggest to one of ordinary skill in the art the desirability of practicing cyclic transfers in combination with the two explicit lists, thus rending the claim limitations obvious.

Furthermore, Thompson shows what is known in the art regarding evaluating alternatives in a logistics network. Cyclic transfers is evidence that those in the art recognize the benefits of moving loads from a more expensive alternative to a least expensive alternative. Thompson shows performing this approach using various lists (the notation of the permutation of cyclic transfers, roh; and the discussion regarding two different sets of routes I and J, show that the idea of cyclic transfers is done in groups, i.e. in lists). The applicant's approach is nothing more than a predictable combination of what is known in the art with the predictable result of analyzing a list of routes with alternatives and moving loads from one route to another, if the movement saves money. At the very least, the teaching of cyclic transfers alone, that is moving a route from one segment to another segment if economically beneficial to do so, makes the invention obvious. The concept of using "lists" of routes to analyze is known in the art, since Thompson shows a complete list of routes in his examples (see Figure 1 on page 936).

The remaining arguments are moot in view of new grounds of rejection.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 is rejected under 35 U.S.C. 101 based on Supreme Court precedent, and recent Federal Circuit decisions, the Office's guidance to examiners is that a § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v. Deener, 94 U.S. 780,787-88 (1876).

An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Here, applicant's method steps, fail the first prong of the new Federal Circuit decision since they are not tied to another statutory class and can be performed without the use of a particular apparatus. Thus, **Claim 1** is non-statutory since it may be performed within the human mind.

Claims 2-8 depend on **Claim 1** and are therefore not statutory at least for the reasons given above for **Claim 1**.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1–8, 14-21 and 27-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thompson**, Paul; Psaraftis, Harilaos; "Cyclic Transfer algorithms for multivehicle routing and scheduling problems", Sept-Oct 1993, Operations Research, vol. 41, No. 5, pp.935-946. (hereinafter **Thompson**) in view of "A personal-computer assisted decision support system for private versus common carrier selection" Hokey **Min**, Transportation Research Part E: Logistics and Transportation Review, Volume 34, Issue 3, September 1998, Pages 229-241 (hereinafter **Min**).

Thompson teaches the utilization of various algorithms and techniques to solve vehicle routing problems. The general approaches outlined by Thompson involves taking into account various criteria to most efficiently schedule vehicles on a logistics network where the solution space is mathematically complex. Thompson's discussion involves how various ways of applying cyclical transfers can be used to heuristically optimize a network. While it is not readily clear or apparent that the various techniques suggested by Thompson were used in one embodiment, it is the examiner's position that one of ordinary skill in the art of Operations Research (OR) and logistics would combine the approaches and techniques to teach the claim limitations as outlined below.

Regarding **Claim 1**, Thompson teaches:

A method for optimizing a tour having a first segment with an origination point and a destination point and a second segment with an origination point and a destination point, comprising:

page 935, Thompson addresses vehicle routing and scheduling problems where the segments the vehicles traverse have an origin and a destination point (see Figure 1).

receiving first load data about a first load and second load data about a second load;

page 936 column 1, the transportation network being modeled has demands that are shifted between routes (i.e. a first load and a second load – demands).

evaluating a fit of the first load data on the first segment and a fit of the second load data on the first segment;

evaluating a fit of the first load data on the second segment and a fit of the second load data on the second segment;

page 936 column 1 bottom para, the cyclic transfer method evaluates the loads placed on both routes.

ranking, in a first list comprising available loads for the first segment, the relative fits of the first load data and the second load data against the first segment on a first segment list;

ranking in a second list comprising available loads for the second segment. the relative fits of the first load data and the second load data against the second segment on a second segment list;

page 936 column 2 bottom 9ara, the evaluation of the members of the neighborhood to determine that no other load has a better objective function value is ranking the relative fits of the various loads on neighboring segments (i.e. a first and a second). Note that Thompson teaches the cyclic transfers being done in groups, i.e. roh is a cyclic permutation of a subset of the routes of 1 to m – this suggests creating two lists – one to transfer loads from and one to transfer loads to. Also see the discussion at the bottom of column 1 to top of column 2 – I and J are two lists where the cyclic transfers are made from one list to another (i.e. before and after the transfer).

assigning the load having the highest ranking fit from the first segment list to the first segment and removing that load from the second segment list; and

assigning the load having the highest ranking fit from the second segment list to the second segment.

Figure 1 on page 936 shows the assignment of a various loads (i.e. including a first and a second) from a first route to a second route (ie. from a first list to a second list).

Thompson's teachings imply that there is a list since on page 936 bottom paragraph Thompson mentions "all cyclic transfers" in terms of adjusting loads to minimize the objective function. however, Thompson does not explicitly show a first list and a second list, however, since Thompson does teach (see again page 936 column 1 middle paragraph the mathematics of mapping the various demands onto dummy routes to find the best fit) a set of demands and a set of possible routes, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Thompson's teachings regarding mapping loads onto dummy routes to include showing at least two lists of the possible combinations to be optimized, because it is old and well known in the art that groups of routes (i.e. segments) may be shown as lists. Furthermore, the use a having two lists (Thompson suggests more than two possible combinations to optimize towards, because Thompson teaches looking at the different possible combinations, i.e. many lists, in a neighborhood) would at least have been obvious to try, because Thompson teaches optimizing the objective function in a neighborhood of solutions.

Thompson teaches evaluation of various route segments using cyclic transfers, that is, by attempting to improve the performance of cost in a vehicle scheduling and routing problem through transferring loads from one route to another. However, since Thompson is dealing primarily in the theoretical OR world by showing how the math is used to accomplish his approach, Thompson does not explicitly teach

wherein evaluating the fit of the first load data further comprises:

determining a common carrier cost for putting the first load on a common carrier;

determining a dedicated cost for putting the first load on the first segment; and

setting a savings criteria for the first segment as the difference between the common carrier cost and the dedicated cost;

Min teaches:

determining a common carrier cost for putting the first load on a common carrier;

page 230 para 2 under "problem definition" – here Min notes that common carriers have their own rate structures for carrying a load (e.g. $25 per stop).See also page 231 para 3.1 para 1, cost for any particular segment is usually cheaper using a common carrier.

determining a dedicated cost for putting the first load on the first segment; and

page 230 para 3 under "problem definition" - here Min notes the cost associated with putting a load on segments using a dedicated (i.e. private fleet). See also page 231 para 3.1 para 1, cost for any particular segment is usually cheaper using a common carrier.

setting a savings criteria for the first segment as the difference between the common carrier cost and the dedicated cost

page 234 para 2 under section 4.2, Min teaches using an AHP process to evaluate cost for private vs common carrier. Min proposes using this approach, looking at a life cycle costing method for both common and private carrier (see page 234 bottom). See the algorithm on page 235 Figure 1 for how the carrier selection is performed using an AHP approach.

Thus Min teaches looking at private vs common carrier cost analysis for a particular segment, taking into account total life cycle costs and other benefits so that a meaningful comparison can be made.

Min and Thompson both address how to optimize shipping and transportation, thus they both are analogous art.

One of ordinary skill in the art at the time of the invention would have modified the teachings of Thompson, regarding looking at swapping shipments among legs (i.e. cyclic transfers) to include the teachings of Min regarding looking at cost comparison

between common and private carrier, because it would have shown how the total life cycle cost comparison for private versus common carrier would have shown which carrier to use with the cyclic transfers of putting loads on various segments.

Regarding **Claim 2** Thompson teaches:

wherein evaluating the fit of the first load data further comprises evaluating key parameters of the first load data, wherein the key parameters include one or more of a time criteria, a distance criteria, and a savings criteria.

Page 936, the objective function being optimizes implies a cost function optimizing, i.e. a savings criteria.

Regarding **Claim 3** Thompson teaches

checking a latest ready delivery date of the first load data against the first segment's estimated end date; and if the latest ready delivery date is greater than the estimated end date, setting the first load as unfit for assignment to the first segment.

Page 937 column 2, Thompson suggests that the approach minimizes tardiness (i.e. implying that there is a time window by which the load must be delivered).

Regarding **Claim 4** Thompson teaches:

wherein evaluating the fit of the first load data further comprises:

checking a latest load ready date of the first load data against the first segment's estimated start date; and if the latest load ready date is less than the estimated start date, setting the first load as unfit for assignment to the first segment.

Page 938 VRPSPTW (Vehicle Routing Problems with Time Windows) algorithms suggest to one of ordinary skill in the OR art that time windows (i.e. for pickup and delivery) are criteria that can be evaluated against. It would have been obvious to one of ordinary skill in the art to set as a criteria for optimizing, according to the cyclic transfer approach of Thompson, that loads have a pickup window time (i.e. a latest load ready date against a first segment's start date) because Thompson shows that VRPSPTW problems can be solved using a cyclic transfer approach.

Regarding **Claim 5** Thompson teaches:

wherein the distance criteria include one or more of a segment deadhead criteria, load deadhead criteria, and tour mileage criteria.

Page 936 Figure 1, the illustration of Figure 1 and moreso, the discussion of "arcs" on page 937 column 1 para 1-2, where the cost minimizing aspects of the arcs suggest that, at least, tour mileage is a criteria to be minimized.

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Regarding **Claim 6** Thompson teaches and suggests minimizing distance traveled and evaluating the fit of loads on segments as per a cost criteria, as discussed above, however Thompson does not teach where the computing involves computing the resulting deadhead from assigning a load to a first segment. However, Official Notice is

taken that deadheads are known in the art of logistics as resulting from carrying loads to a destination and having a potential empty transport on the return (i.e. the deadhead). Since Thompson teaches comparing a criteria to determine if a load should go on a segment, it would have been obvious to one of ordinary skill in the art to include accounting for deadheads in the optimization approach of Thompson, because it would have provided a predictable result in deadhead segments of a transportation route.

Regarding **Claim 7** Thompson teaches and suggests minimizing distance traveled and evaluating the fit of loads on segments as per a cost criteria, as discussed above. Thompson further teaches setting a route optimization scheme which minimizes the total distance (see page 943 column 1 para 1 and Table V "Mean Route Distance" suggests minimizing the total route time.

As noted above for Claim 6, Thompson does not teach where the total deadhead is measure as part of the cost minimization function, however the concept of measuring a deadhead route is old and well known in the art of logistics and would have provided a predictable result in combination with the concept of minimizing total distance as taught by Thompson. Therefore it would have been obvious to modify Thompson by one of ordinary skill in the art at the time of the invention to include setting a cost criteria which measures total deadhead amount as a criteria for computing a cyclic transfer in optimizing a logistics network, because it would have provided a predictable result in accounting for vehicle deadhead distance in optimizing a logistics network.

Regarding **Claim 8**, Thompson teaches

computing the total tour mileage that would result from assigning the first load to the first segment; and if the computed total tour mileage is greater than the tour mileage criteria, setting the first load as unfit for assignment to the first segment.

Page 941 column 1, para 1 under section 4.1; The minimum set of total distance is the objective function against which cyclical transfers are evaluated.

Claims 14-21 and 27-34 recite similar limitations to those addressed by the rejection of **Claims 1-8** above, and are therefore rejected under the same rationale.

Furthermore regarding **Claims 14-23 and 27-34** Thompson suggests using software and a computer (including a processor) – see page 943 column 1 para 2 and Table V ("Mean CPU Time").

Conclusion

8 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

"The paired combinatorial logit model: properties, estimation and application "

Frank S. Koppelmana, Chieh-Hua Wen1, Transportation Research Part B: Methodological, Volume 34, Issue 2, February 2000, Pages 75-89.

"Consolidating and Dispatching Truck Shipments of Mobil Heavy Petroleum Products", Bausch et al., 1995 Institute for Operations Research and the Management Sciences, Interfaces, 25: 2 March -April 1995 (pp.1-17).

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth V Boswell can be reached on 571-272-6737. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS 3-23-2009

/Jonathan G. Sterrett/

Primary Examiner, Art Unit 3623